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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/624,266	07/21/2003	Tyson McGuffin	200208594-1	7332

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EXAMINER	
WHALEY, PABLO S	

ART UNIT	PAPER NUMBER
1631	

DATE MAILED: 11/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/624,266	MCGUFFIN ET AL.	
	Examiner	Art Unit	
	Pablo Whaley	1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-24 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) 1-24 are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

ELECTION/RESTRICTIONS

Restriction to one of the following inventions is required under 35 U.S.C. 121:

Group I: Claims 1-9, 19, 20, 23, and 24 drawn to a method, system, and computer-readable medium for searching for an optimal solution to an optimization problem using a computer-implemented process based on a genetic model, classified in class 703, subclass 011. If this Group is elected, then the below summarized specie election is also required. Also, if this Group is elected, then the below summarized specie election is also required.

Group II: Claims 10-18, 21 and 22 drawn to a method and system for searching for an optimal solution to an optimization problem using a computer-implemented process based on a genetic model, representing candidates as a chromosome pool, and performing iterative steps until a chromosome is determined, classified in class 703, subclass 011. If this Group is elected, then the below summarized specie election is also required. Also, if this Group is elected, then the below summarized specie election is also required.

The inventions are distinct and divergent, each from the other because of the following reasons:

The inventions of **Groups I and II** are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different modes of operation, different functions, or different effects (MPEP § 806.04, MPEP § 808.01). In the instant case the different inventions of **Groups I and II** have different modes of operation.

Group I is drawn to searching for an optimal solution to an optimization problem using a computer-implemented process based on a genetic model, generating and examining a set of child chromosomes, and evaluating the fitness as the optimal solution. Critical features of Group II that are distinct from Group I include the limitations of: representing candidates for the optimal solution as a chromosome pool, each chromosome in the chromosome pool comprising at least one gene; performing iterative steps during each of a series of generations until a chromosome is determined to be the optimal solution to the optimization problem; assigning fitness scores; and updating the chromosome pool for the successive generation. Group I does not disclose any such steps.

Thus, the search for the four groups together would present an undue search burden as they are directed to methods and/or systems that are generally distinct and separate.

SPECIE ELECTION REQUIREMENT

This application contains claims directed to patentably distinct and divergent species of the claimed inventions. If Group I or II is elected, the applicant is further required to make the following specie elections for purposes of examination. The applicant must elect <u>two</u> of the following species (i.e. Specie I and Specie II):

Specie I-A: Method as set forth in Group I or II, wherein the undesirable gene combinations are identified based on a priori knowledge of constraints on the optimization problem.

Specie I-B: Method as set forth in Group I or II, wherein the undesirable gene combinations are identified by use of a statistical technique.

Specie I-C: Method as set forth in Group I or II, wherein the undesirable gene combinations are identified by use of neither a prior knowledge nor a statistical technique.

Specie II-A: Method as set forth in Group I or II, wherein altering the undesirably gene comprises deterministically altering at least one undesirable gene combination based on a priori knowledge.

Specie II-B: Method as set forth in Group I or II, wherein altering the undesirably gene comprises randomly altering at least one undesirable gene combination.

Specie II-C: Method as set forth in Group I or II, wherein altering the undesirably gene comprises altering at least one undesirable gene combination with greedy optimization.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, **Claims 1, 5-10, 14, and 18-24** are generic to the above species. The bodies of literature covering "undesirable genetic combinations" related to specific types of disease, for example, are vast. Therefore Specie IA, IB, and IC are distinct and divergent because the bodies of literature that describe these specific methods of identifying undesirable gene combinations are not coextensive. For example, methods of identifying undesirable gene combinations based on a priori knowledge (i.e. heuristic methods), which do not require prior data sets to determine constraints since they are programmed, are distinctly different from statistically based techniques (i.e. neural networks) that require prior data sets in order to train the system. For similar reasons, the bodies of literature that describe Specie IIA, IIB, and IIC are not coextensive. Thus, the search for all species together would present an undue search burden as they are directed to separate divergent subject matter.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct and divergent, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other inventions.

Because these inventions are distinct and divergent for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

Applicant is advised that the reply to this requirement to be complete must include an election of the inventions to be examined even though the requirement be traversed (37 CFR 1.143).

Applicant is reminded that upon the cancellation of claims to a non-elected inventions, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pablo Whaley whose telephone number is (571)272-4425. The examiner can normally be reached on 9:30am through 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ardin Marschel can be reached on (571)272-0718. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Ardin H. Marschel 10/29/05
ARDIN H. MARSCHEL
SUPERVISORY PATENT EXAMINER